

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HOURS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20565-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON DC 20503.

FACILITY NAME (1) CRYSTAL RIVER UNIT 3 (CR-3)	DOCKET NUMBER (2) 0 5 0 0 0 3 0 2	PAGE (3) 1 OF 0 4
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TITLE (4)
Design Error Regarding Hot Shorts Results in Operation Outside 10CFR50 Appendix R Design Basis

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)	
1	1	2 2 9 6	9 6	0 2 2	0 0	1	2	2 0 9 6	N/A	0 5 0 0 0	

OPERATING MODE (9) 5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (CHECK ONE OR MORE OF THE FOLLOWING) (11)						
POWER LEVEL (10) 0 0 0	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)			
	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)			
	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)			
	<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)				
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input checked="" type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)				
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)					

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER
NAME L. R. McDougal, Sr. Nuclear Licensing Engineer		AREA CODE 3 5 2
		5 6 3 - 4 5 8 9

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input type="checkbox"/> NO	0 2 1 4 9 7			

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On November 22, 1996, Florida Power Corporation's (FPC) Crystal River Unit 3 (CR-3) was in MODE 5 (COLD SHUTDOWN). During a self-initiated assessment of the 10CFR50 Appendix R program, components controlled from the Remote Shutdown Panel were discovered to potentially lack the electrical independence from the Main Control Room/Cable Spreading Room fire areas defined in the FSAR and design basis document. At that time, it was determined that CR-3 may have been outside its licensing/design basis in that fire-induced hot shorts involving DC power control circuits could adversely impact the remote shutdown capability. Fire-induced hot shorts in the Main Control Room or Cable Spreading Room involving DC circuits could result in failure of the control power source (for example, blown fuse) prior to transfer to the remote shutdown panel. Consequentially, after transfer to the remote shutdown panel, the effected components would not be operable. The preliminary results of this investigation indicate the cause for this event was design analysis error. After completion of the assessment, the specific actions required to resolve these deficiencies will be summarized in a supplement to this LER, which will be provided by February 14, 1997.

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TEXT CONTINUATION

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FACILITY NAME (1) CRYSTAL RIVER UNIT 3 (CR-3)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
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TEXT (If more space is required, Use additional NRC Form 385A's (17))

EVENT DESCRIPTION

On November 22, 1996, Florida Power Corporation's (FPC) Crystal River Unit 3 (CR-3) was in MODE 5 (COLD SHUTDOWN). In response to a previously issued Problem Report, FPC contracted an outside organization to perform an assessment of the 10CFR50 Appendix R program. This assessment identified several components, controlled from the Remote Shutdown Panel [JL], that potentially lack the electrical independence from the Main Control Room/Cable Spreading Room [NA] fire areas as defined in the FSAR and design basis document (DBD). The preliminary results of this assessment determined that CR-3 may have been outside its licensing/design basis in that fire-induced hot shorts involving DC power control circuits for certain switchgear breakers, motor operated valves (MOV's), and diesel controls, could adversely impact the remote shutdown capability. These preliminary results indicate that, for example, fire-induced hot shorts could result in failure of the control power source (e.g. blown fuse) prior to transfer to the remote shutdown panel. Consequentially, after transfer to the remote shutdown panel, the effected components would not be operable.

10CFR50 Appendix R requires the remote shutdown capability to be independent of the cables, systems or components in the control room. Generic Letter 86-10, "Implementation of Fire Protection Requirements", dated April 24, 1986, states in part, that "Alternate shutdown systems for Appendix R need not be redundant but must be both physically and electrically independent of the control room." The preliminary results of this assessment have indicated numerous circuits which may not perform their intended post fire safe shutdown function for a fire in the Main Control Room, Cable Spreading Room, Control Complex HVAC Equipment Room or the Remote Shutdown Room.

This LER is being issued to make notification of the preliminary findings of a self-initiated assessment of the FPC CR-3 Appendix R program.

This event report is being submitted in accordance with 10CFR50.73.(a)(2)(ii)(B) to describe a condition that is suspected to be outside the plant's design basis.

EVENT EVALUATION

The described event was discovered while the Unit was in COLD SHUTDOWN. Appendix R post-fire safe shutdown requirements are not applicable to outage conditions. Therefore, this event currently does not degrade the safety of CR-3, nor does it compromise the health and safety of the public.

This event is however, a potential design deficiency in the original design which has existed since the Appendix R/Remote Shutdown modifications were completed in 1985 during Refuel V. As such, the postulated fire-induced failures could have rendered components inoperable and incapable of performing their post-fire safe shutdown requirements.

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			YEAR	SEQUENTIAL NUMBER	REVISION NUMBER																
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TEXT (If more space is required, Use additional NRC Form 366A's (17))

CAUSE

The cause of the event is currently under investigation by a Root Cause Team. Preliminary results indicate the cause was a design analysis error in that the original Appendix R analysis, performed in the early 1980's, did not fully isolate circuits which could degrade the control circuitry to the extent that the component would not be operable after transfer of control to the Remote Shutdown Panel.

IMMEDIATE CORRECTIVE ACTION

1. The Plant is currently in Mode 5 and Appendix R post-fire shutdown requirements are not applicable in this mode. Therefore, no immediate plant operational actions are required in this Mode.
2. A formal Root Cause evaluation, RC# 96-060, has been initiated, based upon the preliminary independent assessment, in accordance with Compliance Procedure CP-111, "Processing of Precursor Cards for Corrective Action Program." The preliminary Root Cause report is currently in the review process.

ADDITIONAL CORRECTIVE ACTION

The results of the independent assessment indicate the scope of the initial assessment should be expanded. FPC will initiate an action plan to do so and resolve the design deficiencies identified. The action plan will be summarized in a supplement to this LER to be provided by February 14, 1997.

ACTION TO PREVENT RECURRENCE

The action plan identified in Problem Report PR96-0401 will be utilized to evaluate and track concerns and initiate corrective actions for the CR-3 Appendix R program.

PREVIOUS SIMILAR EVENTS

LER's 95-12, 89-39-01 and 88-12 document previous events involving inconsistencies in compliance with 10CFR50, Appendix R requirements.

ATTACHMENT

Attachment 1 - Abbreviations, Definitions and Acronyms

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FACILITY NAME (1) CRYSTAL RIVER UNIT 3 (CR-3)	DOCKET NUMBER (2)		LER NUMBER (8)			PAGE (3)
	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
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TEXT (If more space is required, Use additional NRC Form 366A's (17))

ATTACHMENT 1 - ABBREVIATIONS, DEFINITIONS AND ACRONYMS

- Appendix R Appendix R to 10CFR50 - Fire Protection Program for Nuclear Power Facilities Prior to January 1, 1979
- CP-111 "Initiation and Processing of Precursor Cards for Corrective Action Program" (Compliance Procedure)
- CR-3 Crystal River Unit 3
- DBD Design Basis Document
- Fire Study 10CFR50 Appendix R Fire Study, "Analysis of Safe Shutdown Equipment and Operation, Revision 4, September 10, 1993
- FPC Florida Power Corporation
- FSAR Final Safety Analysis Report
- PR96-0401 Problem Report "Potential Inadequacy of Appendix R Fire Study Documentation", dated September 27, 1996

NOTES: ITS defined terms appear capitalized in LER text (e.g. MODE ONE)

Defined terms/acronyms/abbreviations appear in parentheses when first used (e.g. Reactor Building (RB)).

EIIS codes appear in square brackets (e.g. Remote Shutdown Panel [JL,PNL])